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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/594,231

09/25/2006

Kaneo Nozawa

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SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER

CHO, JENNIFER Y

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/594,231	Applicant(s) NOZAWA ET AL.	
	Examiner JENNIFER Y. CHO	Art Unit 1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/16/07, 9/25/06</u> | 6) <input type="checkbox"/> Other: _____ |

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-13, drawn to a method for producing a (meth)acrylate derivative having an isocyanate group, classified in class 560, subclass various.
- II. Claim 14, drawn to a method for reducing a hydrolyzable chlorine content, classified in class 560, subclass various.

Groups I and II are separate and distinct processes, which vary materially in the structure, composition and element of the products used for the processes. The method for producing a (meth)acrylate derivative having an isocyanate group, and the method for reducing a hydrolyzable chlorine content, use different reagents and form different products. The compounds used in these processes are divergent and chemically different and thus result in the processes being patentably distinct, i.e. a reference anticipating the elected subject matter would not render obvious the other inventions.

Restriction for examination purposes as indicated is proper because all these inventions listed in this action are independent or distinct for the reasons given above and there would be a serious search and examination burden if restriction were not required because one or more of the following reasons apply:

- (a) the inventions have acquired a separate status in the art in view of their different classification;
- (b) the inventions have acquired a separate status in the art due to their recognized divergent subject matter;

(c) the inventions require a different field of search (for example, searching different classes/subclasses or electronic resources, or employing different search queries);

(d) the prior art applicable to one invention would not likely be applicable to another invention;

(e) the inventions are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a invention to be examined even though the requirement may be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected invention.

If claims are added after the election, applicant must indicate which of these claims are readable upon the elected invention.

Should applicant traverse on the ground that the inventions are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

During a telephone conversation with Bruce Kramer on 6/27/08, a provisional election was made without traverse to prosecute the invention of Group I, claims 1-13. Affirmation of this election must be made by applicant in replying to this Office action. Claim 14 is withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Detailed Action

This office action is in response to Applicant's communication filed on 9/25/2006. Claims 1-14 are pending in this application.

IDS

The information disclosure statements (IDS) filed on 11/16/07 and 9/25/06 are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statements are being considered by the examiner.

Claim Rejections - 35 USC 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holtschmidt et al. (US 2,821,544).

The instant claims are drawn to a method for producing a (meth)acrylate derivative having an isocyanate group, in which a 3-chloropropionate derivative with an isocyanate group, is dehydrochlorinated with a basic tertiary amine reagent, to give a (meth)acrylate derivative having an isocyanate group as the product. The basic tertiary amine reagent contains a tertiary nitrogen having at least one group other than an aromatic ring group.

Holtschmidt et al. teaches a process for producing a (meth)acrylate derivative having an isocyanate group, in which a 3-chloropropionate derivative with an isocyanate group is dehydrochlorinated with a basic tertiary amine reagent, to give a (meth)acrylate derivative having an isocyanate group as the product (column 1, lines 22-25; column 2, lines 14-16, 22-26, 30-32; column 3, lines 22-36, example 1; column 4, lines 4-7; claim 8, column 4-5).

Holtschmidt et al. is deficient in that it does not exemplify the reaction with a basic tertiary amine reagent which contains a tertiary nitrogen having at least one group other than an aromatic ring group.

However, it is the position of the Examiner that one of ordinary skill in the art, at the time of the invention, would through routine and normal experimentation determine the optimization of this limitation to provide the best effective variable depending on the results desired. Thus it would be obvious in the optimization process to optimize the basic tertiary amine reagent used, with the reasonable expectation that the purities, yields and process conditions would be optimized, with the additional consideration of cost and availability of reagents. The Applicant does not show any unusual and/or

unexpected results for the limitation stated. Note that the prior art provides the same effect desired by Applicant, the formation of a (meth)acrylate derivative having an isocyanate group for the polymer industry.

Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holtschmidt et al. (US 2,821,544), in view of Misu et al. (US 6,245,935), further in view of Danielmeier et al. (US 6,222,066).

The instant claims are drawn to a method for producing a (meth)acrylate derivative having an isocyanate group, in which a 3-chloropropionate derivative with an isocyanate group, is dehydrochlorinated with a basic tertiary amine reagent, to give a (meth)acrylate derivative having an isocyanate group as the product. The basic tertiary amine reagent contains a tertiary nitrogen having at least one group other than an aromatic ring group.

Holtschmidt et al. teaches a process for producing a (meth)acrylate derivative having an isocyanate group, in which a 3-chloropropionate derivative with an isocyanate group is dehydrochlorinated with a basic tertiary amine reagent, to give a (meth)acrylate derivative having an isocyanate group as the product (column 1, lines 22-25; column 2, lines 14-16, 22-26, 30-32; column 3, lines 22-36, example 1; column 4, lines 4-7; claim 8, column 4-5).

Holtschmidt et al. is deficient in that it does not exemplify the reaction with a basic tertiary amine reagent which contains a tertiary nitrogen having at least one group other than an aromatic ring group..

Misu et al. teaches a process for producing a (meth)acrylate derivative having an isocyanate group, in which a 2-chloropropionic acid derivative, is dehydrochlorinated with a basic tertiary amine reagent which contains a tertiary nitrogen having at least one group other than an aromatic ring group, such as triethylamine (abstract; column 5, line 15; column 6, lines 11-13).

Misu et al. is deficient in that it does not teach the basic tertiary amine is an ion-exchange resin, from the limitation in claim 5.

Danielmeier et al. teaches purification/production of organic isocyanates in which the chlorine compound is reduced, by reaction with a basic tertiary amine which is an ion-exchange resin (abstract).

Therefore, it would be prima facie obvious to one of ordinary skill in the art at the time of the invention, to use Danielmeier et al.'s ion-exchange amine resin or Misu et al.'s basic tertiary amine reagent which contains a tertiary nitrogen having at least one group other than an aromatic ring group, such as triethylamine, for Holtschmidt et al. et al.'s (meth)acrylate process. One of ordinary skill in the art would be motivated to use Danielmeier et al.'s ion-exchange amine resin or Misu et al.'s triethylamine compound, for Holtschmidt et al. et al.'s (meth)acrylate process, with the reasonable expectation that the purities, yields and process conditions would be optimized, with the additional consideration of cost and availability of reagents. Absent any showing of unusual and/or unexpected results, the art obtains the same effect on the synthesis of (meth)acrylate compounds. Furthermore, the limitations in some of the dependent claims, not expressly taught in the art, are also deemed to be obvious. One of ordinary

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skill in the art would be motivated to modify and optimize these parameters to arrive at the instantly claimed invention. The expected result would be an improved large-scale synthesis of a (meth)acrylate derivative having an isocyanate group for the polymer industry.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer Y. Cho whose telephone number is (571) 272 6246. The examiner can normally be reached on 9 AM - 6 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Sullivan can be reached on (571) 272 0779. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jennifer Cho
Patent Examiner

/SHAILENDRA - KUMAR/
Primary Examiner, Art Unit 1621

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